Medical News in brief

CARBOCAIN, A NEW LOCAL ANÆSTHETIC

From the Department of Anæsthesiology, the Sahlgrenska Hospital, Gothenburg, Sweden, comes a report of trials of a promising new local anæsthetic agent named Carbocain. This is d.1-Nmethyl-pipecolic acid 2,6-dimethyl anilide. It has been extensively tested since December 1954 for all types of regional anæsthesia, except intradural anæsthesia, and for its surface action. Comparisons were made with lidocaine, the previous routine local anæsthetic at this hospital. The two drugs were used in the same concentrations and amount, but Carbocain was given with less epinephrine; thus the 0.5% and 1% Carbocain had 1:200,000 epinephrine added and the 2% Carbocain 1:100,000 epinephrine. Cases were divided into: (1) Small infiltration and block analgesia with use of less than 0.2 g. Carbocain. In practically all cases good anæsthesia was obtained, onset of complete analgesia was short and operations could start within two minutes of the infiltration. (2) Greater infiltration anæsthesia with 0.2-0.5 g. Generally 0.5% was used and good results were obtained in most cases. Only one toxic reaction was observed, though nausea occurred in a few cases. (3) Epidural block with 1% Carbocain. (4) Brachial plexus block with 2% solution. One transient toxic reaction was recorded.

In general Carbocain gave excellent anæsthesia and could for most purposes be used without epinephrine; anæsthesia was somewhat better than with lidocaine. Toxicity was less than with lidocaine.—K. G. Dhuner *et al.*, *Acta chirurg. scandinav.*, 112: 350, 1957.

SIMULTANEOUS MANTOUX AND VOLLMER PATCH TESTS

A study was made in two Los Angeles city schools (Waegele et al., Dis. Chest, 31: 634, 1957), in an effort to determine whether or not the patch test (Vollmer) could be substituted for the intracutaneous test (Mantoux). It was felt that the patch test might have advantages in ease of administration and in acceptability to the student and his parents. The two tests were given simultaneously, using an intracutaneous test (Mantoux) of 0.00025 mg. purified protein derivative (tuberculin) (equal to 12.5 toxic units) and a patch test (Vollmer) (probably equal to 2.5 toxic units). The skin test suffered the disadvantage that in about 10% of the tests the patch became detached before the proper time interval had elapsed. Of 855 students so tested and included in this study, 83 reacted to both tests; 113 to the intracutaneous test but not to the patch test; and 3 to the patch test but not to the intracutaneous test. In general, where the intracutaneous reaction was markedly positive, the patch test was also usually positive, but where the intracutaneous reaction was less marked, the patch test did not cause a reaction. When the patch test is positive, the intracutaneous test is almost certain to confirm tuberculin sensitivity.

It is concluded, therefore, that intracutaneous tuberculin testing should remain the method of choice where feasible. It is acknowledged, however, that in other testing situations the patch test may be a useful procedure.

AGRANULOCYTOSIS ASSOCIATED WITH NOVOBIOCIN ADMINISTRATION

Novobiocin, a recently discovered antibiotic agent, has demonstrated antimicrobial activity against a number of Gram-positive and selected Gram-negative organisms. The adverse reactions reported have been sporadic and have included gastro-intestinal irritation, dermatitis, fever, yellow discoloration of the sclera without evident liver damage, and transient granulocytopenia.

After a 30-day therapeutic course of novobiocin, agranulocytosis with myeloid aplasia of the bone marrow developed in a 55-year-old man who had *Proteus vulgaris* osteomyelitis (Simon and Rogers, *Ann. Int. Med.*, 46: 778, 1957). The patient had also received penicillin, streptomycin, and tripelennamine during part of the period of hospitalization, but there were no strong indications for ascribing the agranulocytosis to these drugs. Prompt recovery followed the cessation of novobiocin and the administration of prednisone, oral penicillin V, and tetracycline.

It is the opinion of the authors that novobiocin was the agent responsible for the agranulocytosis encountered in this patient.

DENSITY OF RED BLOOD CELLS

Investigators from the University of California Medical Center used radioactive iron to show that the density of red blood cells increases with age. By means of six to ten microcuries of Fe59 administered intravenously to normal subjects, radioactive reticulocytes incorporating the isotope in their hæmoglobin soon appeared in the circulation. Serial hæmatocrits were performed at intervals of several days and the radioactive portion of the red-cell column in the tubes was determined. At first, this zone of radioactivity occupied the top layers of the red-cell column, but as time went on, gradually migrated towards the bottom as the tagged cells' density increased. The authors point out though that there is a considerable individual variation in the magnitude of this change in density. The decrease in Fe59 concentration in the bottom layer of the specimens drawn at 90 to 150 days after administration of the isotope, is consistent with the expected time for the disappearance of senescent cells-J. Clin. Invest., 36: 676, 1957.

(Continued on advertising page 38)

MEDICAL NEWS in brief

(Continued from page 241)

ENVIRONMENTAL CAUSES OF CANCER OF THE LUNG (OTHER THAN TOBACCO SMOKE)

Information derived from studies made in this country and in Europe regarding the recognized or strongly suspected environmental causes of cancer of the respiratory system was reviewed by Hueper (*Dis. Chest*, 30: 141, 1956). In the author's opinion evidence pre-

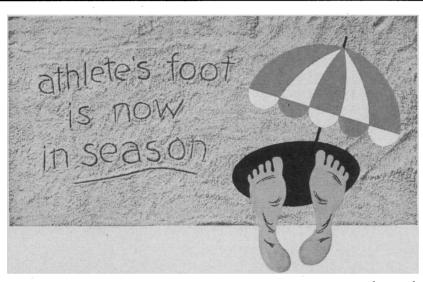
sented definitely established that some well-defined exogenous physical and chemical agents are causally involved in the production of occupational cancers of the respiratory system of members of certain restricted worker groups.

The first observations regarding an appreciable rise in the frequency of lung cancer were reported early in this century from the highly industrialized cities of Saxony. During the last 25 years a remarkable and progressive rise in the number and frequency of can-

cers of the lung has been noted in most industrialized countries. During this same period, with one exception, all known exogenous respiratory carcinogens were discovered. Observations (clinical. epidemiological, pathological and experimental) related to these respiratory carcinogens represent the only reliable factual evidence available on the causation of cancers in different parts of the respiratory tract. No valid evidence exists which incriminates hereditary or endogenous factors as primary causal agents of human lung can-

Hueper presented and analyzed many data on the causal associations between exposure to such incriminating agents as arsenic, asbestos, beryllium, chromium, nickel, iron, radioactive substances, polycyclic hydrocarbons, petroleum derivatives and gasoline, and the subsequent development of respiratory cancer. He also considered the variation according to age group, the long latent periods, geographical distribution and the urban-rural distribution pattern.

The evidence disclosed would suggest that (1) industry-related factors account for a much larger number of lung cancers than that on record. (2) Industry-related air pollutants may play a causal role in lung cancer and its recent considerable increase in frequency in practically all industrialized countries. (3) While occupational and industry-related carcinogenic air pollutants seem to play an important role, it is obvious that they are not the only factors responsible for pulmonary carcinogenesis. (4) Research on the etiology of lung cancer therefore should be conducted on a broad basis, including not only inhalants but also agents entering the body through nonrespiratory routes.



Susceptibility factors play an important part in the occurrence and spread of athlete's foot. With the advent of warm weather, individuals who have had the disease are prone to exhibit recurrences or reinfection. Frequently, this can be prevented by the continuous prophylactic use of Desenex preparations.



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NON-TUBERCULOUS CAVITARY DISEASE OF THE LUNGS

In a recent report (Dis. Chest, 31: 665, 1957) Laforet and Laforet emphasize that the roentgenographic demonstration of pulmonary cavitation is not equivalent to a diagnosis of tuberculosis, since a wide variety of other conditions may produce or simulate cavitary disease of the lungs. A compilation (based upon a survey of the litera-

(Continued on page 41)

MEDICAL NEWS in brief (Continued from page 38)

ture) was made of all such entities. One hundred and forty-five cases of non-tuberculous pulmonary disease observed at the Hermann M. Biggs Memorial Hospital, Ithaca, New York, during a 13-year period were studied. One hundred and forty-one were instances of acquired non-tuberculous pulmonary disease and in 98 of these cavitation or rarefaction was noted roentgenologically at some time in the course of the disease, an incidence of approximately 70%. Three cases of lung cyst were encountered and all showed pseudo-cavitation. In one additional patient, the presence of diaphragmatic hernia simulated cavitary disease of the lung roentgenologically. In determining the etiology of a cavitary process in any specific instance, the roentgen characteristics alone are not sufficient to permit final diagnosis, and careful interpretation of diagnostic data obtained from other sources is essential. Since therapy of an excavating lung lesion may vary greatly depending upon the etiology, accurate diagnosis is important.

INCIDENCE OF MYOCARDIAL INFARCTION

Traditional teaching has it that the incidence of fatal acute myocardial infarction is higher in the male than in the female. A review of the autopsy data of Barnes Hospital qualifies this statement by concluding that it was so before 1940, but that since then the ratio of male to female is just about 1:1. The male predominance is still prevalent in young subjects; however, it evens out with the years, and in the older age group there is a predominance of females over males. This is not related to a rise in incidence of diabetes mellitus, hypertension or obesity, nor is it attributable to some statistical artefact. There seems to have been a definite rise in the last 15 or 20 years in the incidence of this disease among the older white female population.

The Negro race is less susceptible than the white races, and both sexes are equally affected. The higher susceptibility to acute myocardial infarction of the white population over the coloured has become much more pronounced since 1940. Whereas the Negro diabetic is not much more prone

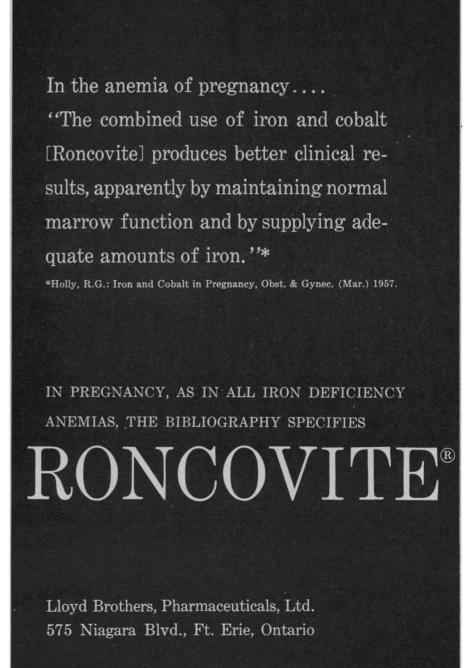
to develop myocardial infarction than his non-diabetic counterpart, the white diabetic is four times more susceptible to this disease than the white non-diabetic. Dr. W. A. Thomas of Washington University claims that "some changing factor(s) civilization in our [seems] responsible and it is remarkable that its effect has been almost exclusively confined to members of the white race." Reports from other centres along the same lines and showing the same trends are in the process of being

published.—Nutrition Reviews, 15: 97, 1957.

ALDOSTERONE-PRODUCING TUMOURS OF THE ADRENAL

Three additional cases of primary aldosteronism have been reported by Hewlett and associates from Cleveland (*J.A.M.A.*, 164: 719, 1957). In each case the sodium-retaining substance was identified as

(Continued on page 42)



MEDICAL NEWS in brief

(Continued from page 41)

aldosterone diacetate, which was present in large amounts in the urine

Two of the patients had intermittent paralysis, and the third had periods of generalized weakness but no paralysis. They had excessive thirst, polyuria, nocturia and headaches. Arterial hypertension was present in each case, with mild vascular changes in the retina due to hypertension. Hypokalæmia was

present in each case; in two cases the electrocardiogram showed significant prolongation of the QRS complex. Alkalosis was present. Urine-concentrating power was decreased, and two patients had diabetes.

After removal of the adrenocortical tumour each patient became asymptomatic, weakness rapidly subsided, and there were no further episodes of paralysis. The electrocardiographic changes showing the presence of hypokalæmia disappeared. In one patient the blood pressure became normal, in another it was lowered, and it remained unchanged in the third. The serum potassium levels rose. Subsequently, on normal potassium intake, abnormally high serum potassium levels were observed in all three patients. Mild acidosis appeared temporarily. The shift in serum potassium levels and carbon dioxide combining power through normal ranges to values opposite to those formerly present may be explained on the basis of a compensatory suppression of adrenocortical function that represents the presence of temporary hypoaldosteronism.

Blood urea levels became abnormally high in two patients postoperatively. A glucose tolerance curve typical of diabetes became normal in one patient, and frank diabetes was ameliorated in another.

There was a comparatively rapid recovery of the ability to form acid urine, as compared with the slow recovery of the concentrating function. This accords with the interpretation that the alkalinity of the urine reflects the direct action of aldosterone, while the hyposthenuria is a secondary result of the cellular potassium deficiency with resultant structural damage.

TARAXEIN

A group of workers from the Department of Psychiatry and Neurology of Tulane University's School of Medicine have extracted a protein from the serum of schizophrenic patients which they have called Taraxein. The isolation of this substance followed upon the observation that the serum of schizophrenic patients in remission would oxidize adrenaline more rapidly and would contain a lower level of glutathione than that of normal controls. This was eventually attributed to the effect of a copper globulin oxidase known as ceruloplasmin. Injection of this protein intravenously in monkeys produced electroencephalographic changes in the septal region and the rostral hippocampus very similar to those encountered in human schizophrenia. Clinically the monkeys showed mild behavioural changes which became considerably more pronounced when a bluish precipitate obtained in the course of the purification of the protein was injected instead. A



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small number of human volunteers received the drug. The number of experiments carried out so far has been small on account of the amount of blood necessary for the production of one dose of injection material (one dose being 1-3 ml. extracted from 900 ml. of pooled blood from schizophrenic patients). All the human volunteers who received the active substance showed fundamental symptoms of schizophrenia, whereas all the controls injected with material extracted from blood of normal subjects, in the double blind study, failed to react in any way. The main effect of the drug seems to have been a disorganization and a fragmentation of the cerebration process. The patients appeared as if they were out of contact with reality, had a blank look on their face, and seemed as if they were in a daze. Secondary symptoms varied with the patients and reproduced those encountered in one of the various clinical forms of schizophrenia. The authors point out that the predictions as to the expected type of secondary symptomatology which were attempted on the basis of the mental status of the patients were wrong in the majority of cases. Whereas symptoms lasted for a period of one or two hours after the injection in the non-psychotic population, a schizophrenic volunteer in remission of his symptoms suffered a severe exacerbation lasting four days. It was also noticed that the symptoms produced were more intense after the second injection than they were after the first. With all due concern to the limited number of experiments in their series, the authors conclude that schizophrenia is probably one single disease entity in spite of its various clinical forms, and that the fundamental defect in schizophrenic patients may be connected with an impaired detoxification mechanism. -Am. J. Psychiat., 114: 14, 1957.

GLUCOSE LEVELS OF CEREBROSPINAL FLUID

The assumption that a reduced sugar level in the cerebrospinal fluid in cases of bacterial meningeal infections is due to the metabolic action of the micro-organisms may be erroneous. Baltch and Osborne of Syracuse, New York,

working on dogs, have shown (J. Lab. & Clin. Med., 49: 882, 1957) that infections caused by Micrococcus pyogenes (aureus), group A beta hæmolytic Streptococcus and Diplococcus pneumoniæ will bring about a lowering of the sugar level in the cerebrospinal fluid (C.S.F.) but that acute aseptic meningitis caused various irritants to the central nervous system will produce a pleocytosis without any appreciable drop in the sugar level. However, sterile fluid incubated with a suspension of leukocytes in vitro did produce a drop in sugar concentration. One must remember

that the number of micro-organisms needed to produce a decrease in the C.S.F. sugar in vitro through their metabolic action is much greater than that usually encountered in any form of acute purulent meningitis. Such a drop is frequently observed in tuberculous meningitis where the organisms are often extremely difficult to isolate either on smear or in culture form. The drop in sugar concentration of sterile C.S.F. incubated with leukocytes merely confirms a point already demonstrated in the past, that white cells split sugar

(Continued on page 44)

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MEDICAL NEWS in brief

(Continued from page 43)

and produce lactic acid. These apparently conflicting results could be explained through alterations in the function of the blood brain barrier which in cases of aseptic meningitis with pleocytosis could let the blood glucose enter the C.S.F. unimpaired, thus maintaining it at a relatively steady level, whereas in bacterial infections, it could either retain its selective properties or even exaggerate them as regards the passage of glucose.

TREATMENT OF ULCERATIVE COLITIS WITH LOCAL HYDROCORTISONE HEMISUCCINATE SODIUM

Last year Truelove of Oxford reported that hydrocortisone dissolved in 5% ethyl alcohol used as a rectal drip in mild and moderate cases of ulcerative colitis produced remission in two out of three cases, but biopsy specimens of colonic mucosa failed to show corresponding improvement. In a second series (*Brit. M. J.*, 1: 1437, 1957) he describes the use of hy-

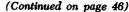
drocortisone hemisuccinate sodium soluble in water. The equivalent of 100 mg. of hydrocortisone was dissolved in 120 ml. of normal saline. A rubber catheter was attached and the solution was given at one or two drops per second. Patients were taught to give treatments at home. At first 10 nightly treatments were given, and later this was increased to 14.

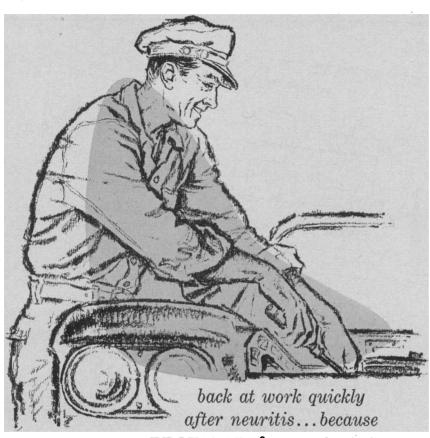
Eighteen courses were given to patients. Rapid remissions occurred in 11, one was improved, and in 6 there was no change. Clinical improvement was rapid in those showing favourable response. It was found that a patient who had once responded to local hydrocortisone was likely to do so again if symptoms recurred. Sigmoidoscopy appearances in these patients going into remission revealed marked improvement. Histologically, the colonic mucosa showed improvement corresponding to clinical and sigmoidoscopic appearances. Apparently lack of histological improvement in the previous study was due to the presence of 5% ethyl alcohol in the infusion.

The presence of secondary infection could be a possible explanation of the failure of some patients to respond to treatment. It would seem important to test the effect of combining hydrocortisone with antibiotics for local use in ulcerative colitis.

PHENYLBUTAZONE IN NEUROLOGY

There are certain well-known instances in medicine where the inflammatory reaction goes beyond the point where it serves its purpose. In such cases measures should be taken to reduce its intensity, and one of the drugs which have been used recently for this purpose is cortisone and derivatives. Lestrade and Pellissier (Presse Méd., 65: 712, 1957) reported the use of phenylbutazone employed for similar purposes in viral infections of the nervous system. The authors describe in detail two cases of encephalitis in which the patients were treated to no advantage with cortisone but recovered after administration of phenylbutazone. This therapy is claimed to have had successful results in Guillain-Barré syndrome and in herpes zoster. Whereas ex-





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Smith, R. T.: M. Clin. North America, March 1957.
 Smith, R. T.: New York Med. 5:16, 1952.
 Lehrer, H. W. et al.: Northwest Med. 75:1249, 1955.

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MEDICAL NEWS in brief

(Continued from page 44)

perimentally cortisone is supposed to stimulate the virulence of certain strains of viruses, no such action has ever been attributed to phenylbutazone. These same authors recommend a wider use of this drug in cases where antibiotics are of no avail, or even in the face of infection provided that adequate antibiotic coverage is administered simultaneously.

CLINICAL RECOGNITION OF POSTOPERATIVE MICROCOCCIC (STAPHYLOCCIC) ENTERITIS

Alteration or depression of intestinal flora renders the hospital patient more susceptible to enteritis; in addition the operative procedure seems to lower the patient's resistance to micrococci. The sudden onset of tachycardia, fever, intestinal ileus, and diarrhœa between the second and seventh postoperative days may indicate the toxæmia of micrococcic enteritis.

Early treatment is imperative. A specific drug should be delivered to the actual source of growth of micrococci. Combined oral and intravenous administration of a specific drug should be ideal. Antibiotics not in general use are more likely to be effective. Erythromycin, carbomycin, chloramphenicol, and neomycin are the drugs of choice at this time. The newer antibiotic, novobiocin, has been most effective in the cases seen during the last six months.—R. B. Turnbull, J.A.M.A., 164: 756, 1957.

MOTION PICTURE ON REHABILITATION

A Canadian motion picture on rehabilitation was brought to New York by the American Medical Association for the first International Film Exhibition, June 3-7, at the Barbizon-Plaza Hotel. "Teamwork in Action" is a 33-minute sound motion picture telling the story of a man disabled in an industrial accident and showing how he was fitted with an artificial leg and returned to work.

The Canadian film was one of 45 foreign motion pictures selected

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COMPULSIVE SWEARING

A homosexual English salesman aged 28 had become incapacitated for work or normal society because of a vocal tic resembling a hiccup accompanied with repeated utterance of obscene words. Michael (Brit. M. J., 1: 1506, 1957) records the cure of this condition within a few months by 30 treatments of inhalation of carbon dioxide 70% begun at a rate of four times a week and gradually spaced out. Psychoanalytically orientated psychotherapy had previously failed. The case is considered to be a good example of the Gilles de la Tourette syndrome with childhood onset with multiple tics and coprolalia, a latent period, and the return in adult life of a convulsive muscular tic, a vocal tic and obscene utterances.